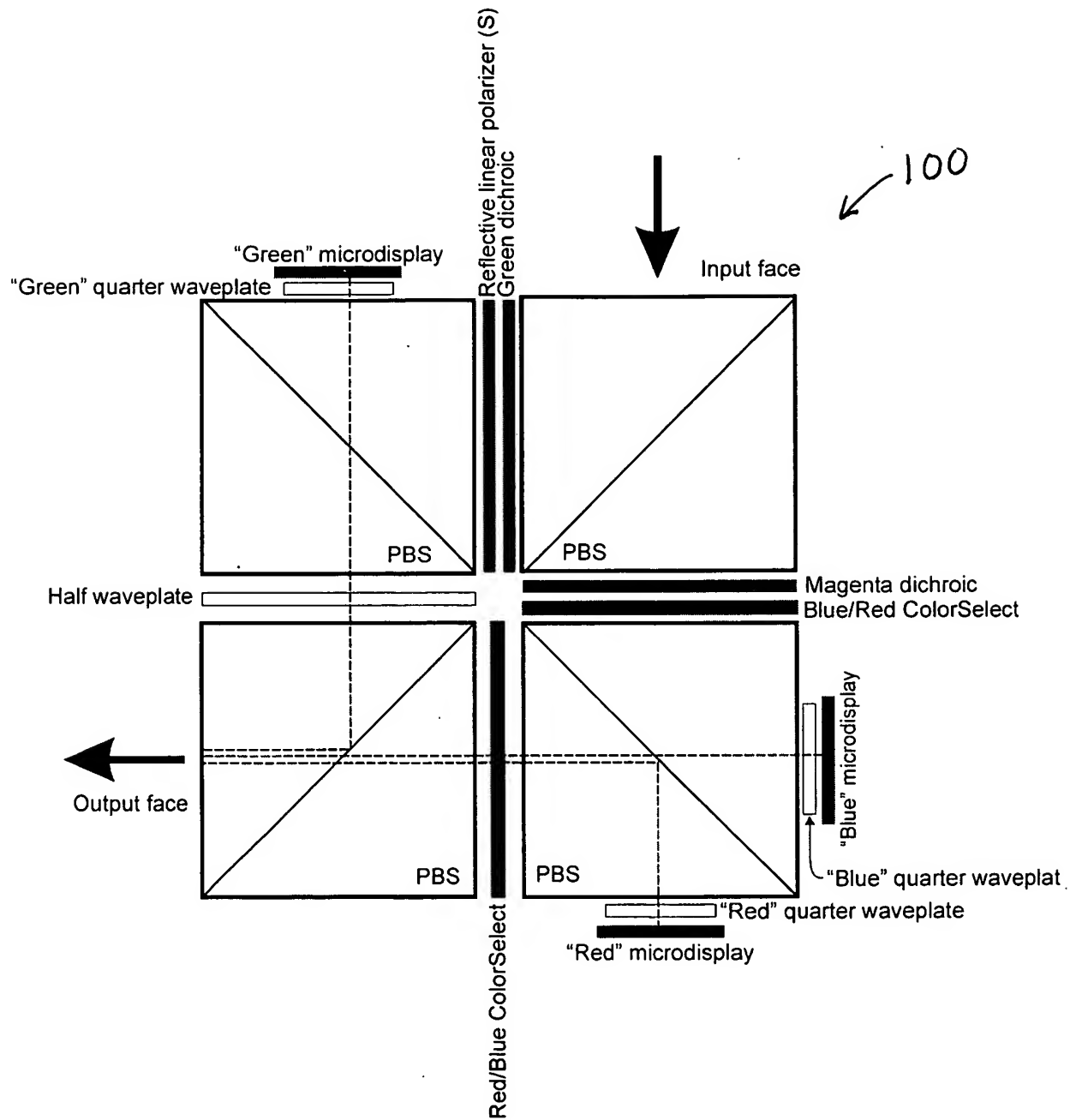
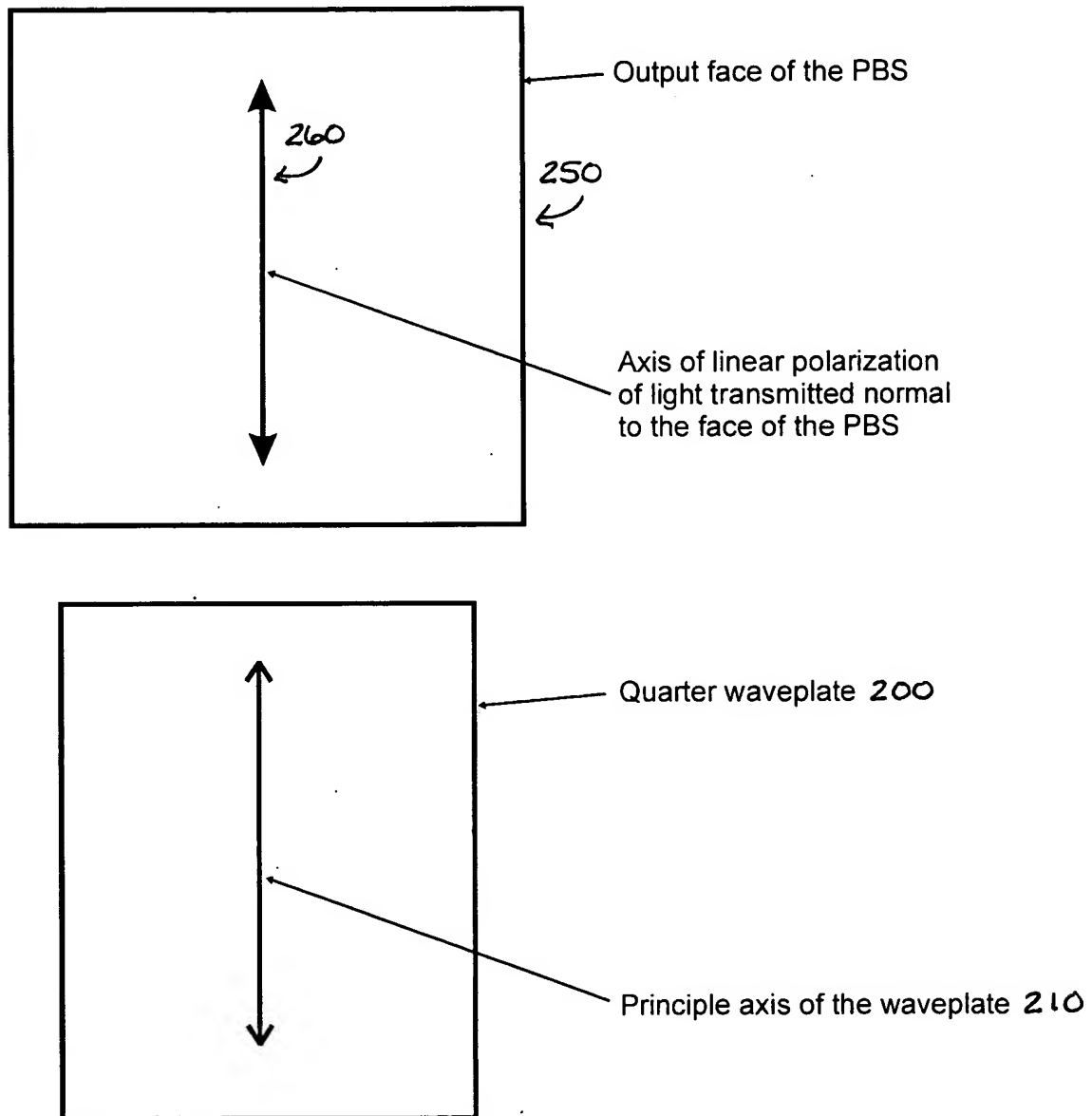


FIGURE #1: A SIMPLIFIED LCOS BASED KERNEL

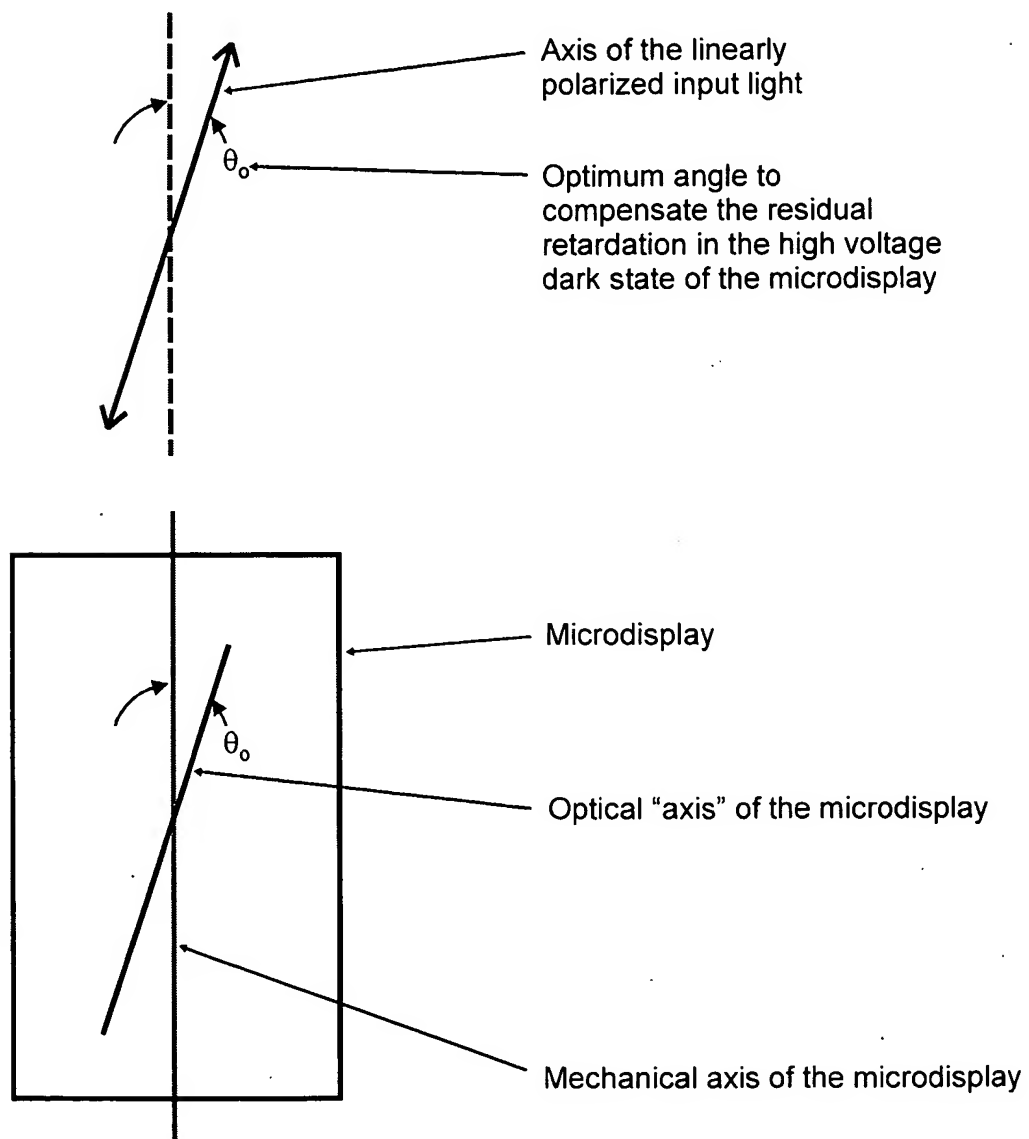


**FIGURE #2: OPTIMUM ORIENTATION OF THE
QUARTER WAVEPLATE
TO ACCOMPLISH SKEW RAY COMPENSATION**



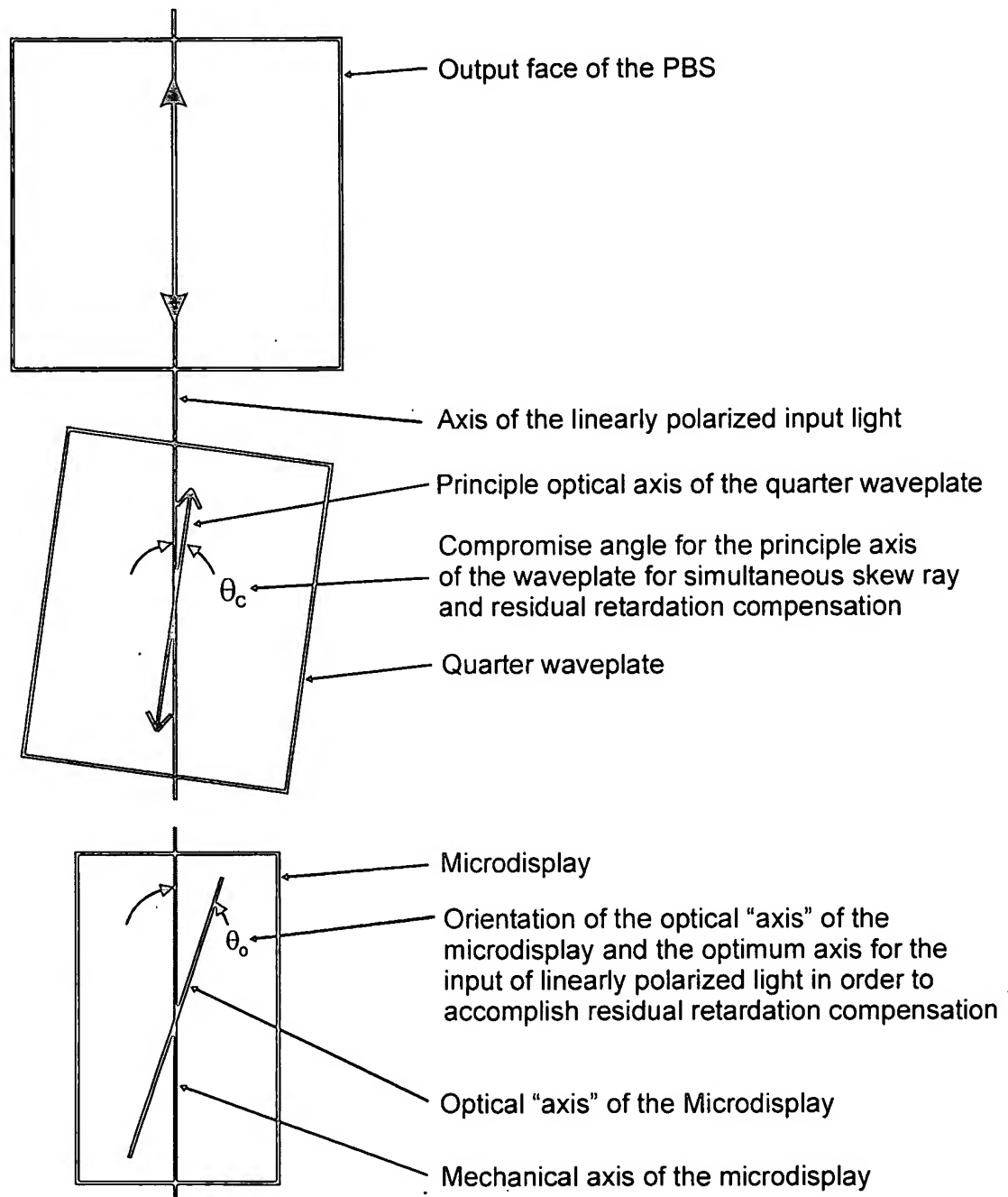
The optimum angle between the axis of linear polarization of the light transmitted normal to the face of the PBS and the principle optical axis of the waveplate is zero degrees

**FIGURE #3: OPTIMUM ORIENTATION
TO COMPENSATE RESIDUAL RETARDATION
IN THE DARK STATE OF THE MICRODISPLAY**



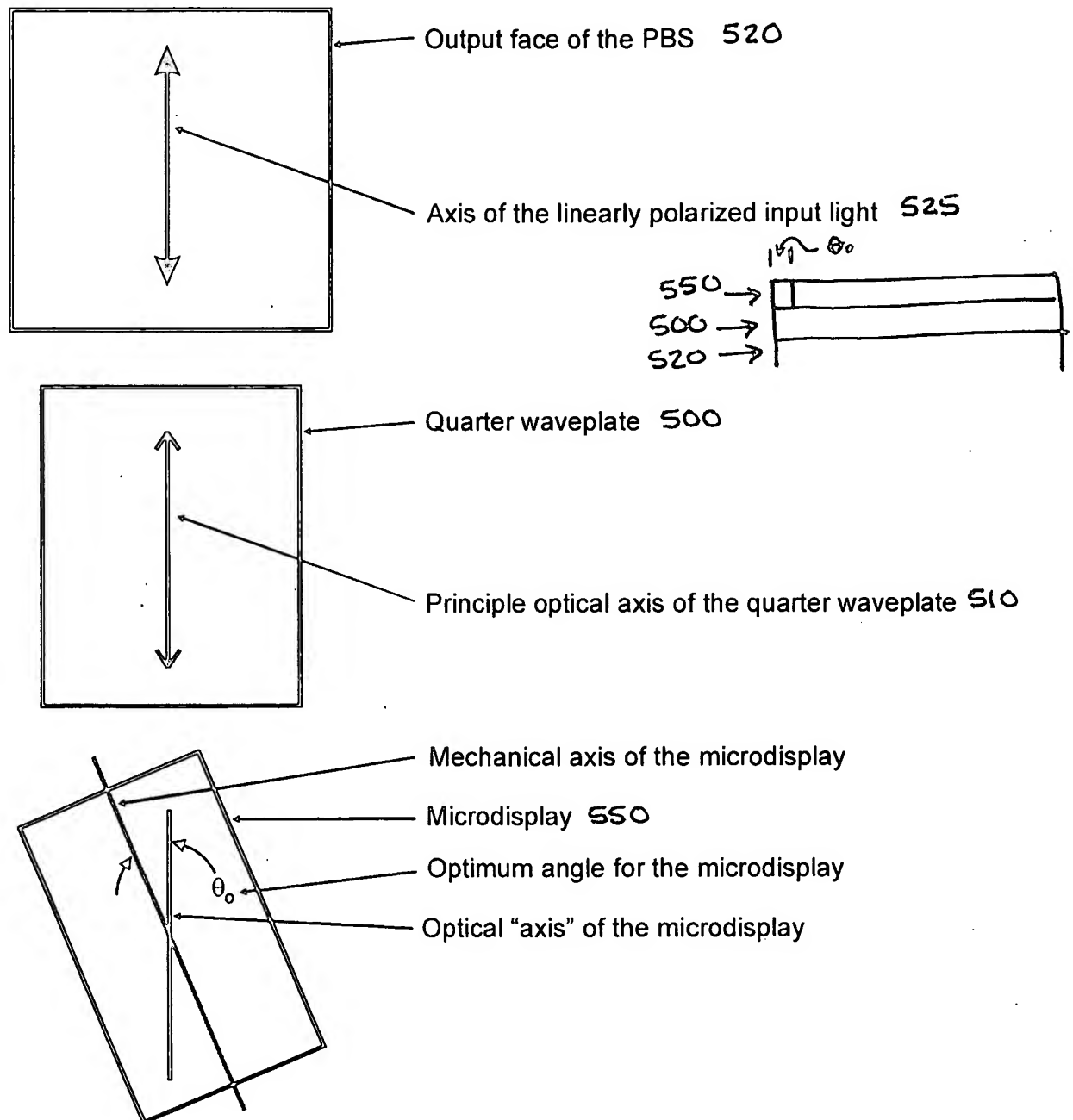
Optimum compensation of the residual retardation in the microdisplay occurs when the angle between the axis of linearly polarized input light and the optical "axis" of the microdisplay is 0 degrees. This direction is oriented at an angle of θ_o with respect to the mechanical package of the microdisplay.

FIGURE #4: COMPENSATION METHOD USED IN CONVENTIONAL LCOS KERNELS



The angle chosen for the orientation of a principle optical axis of the waveplate θ_c is a compromise between the optimum angle required for skew ray compensation (zero degrees) and the angle required for optimum residual retardation compensation θ_o .

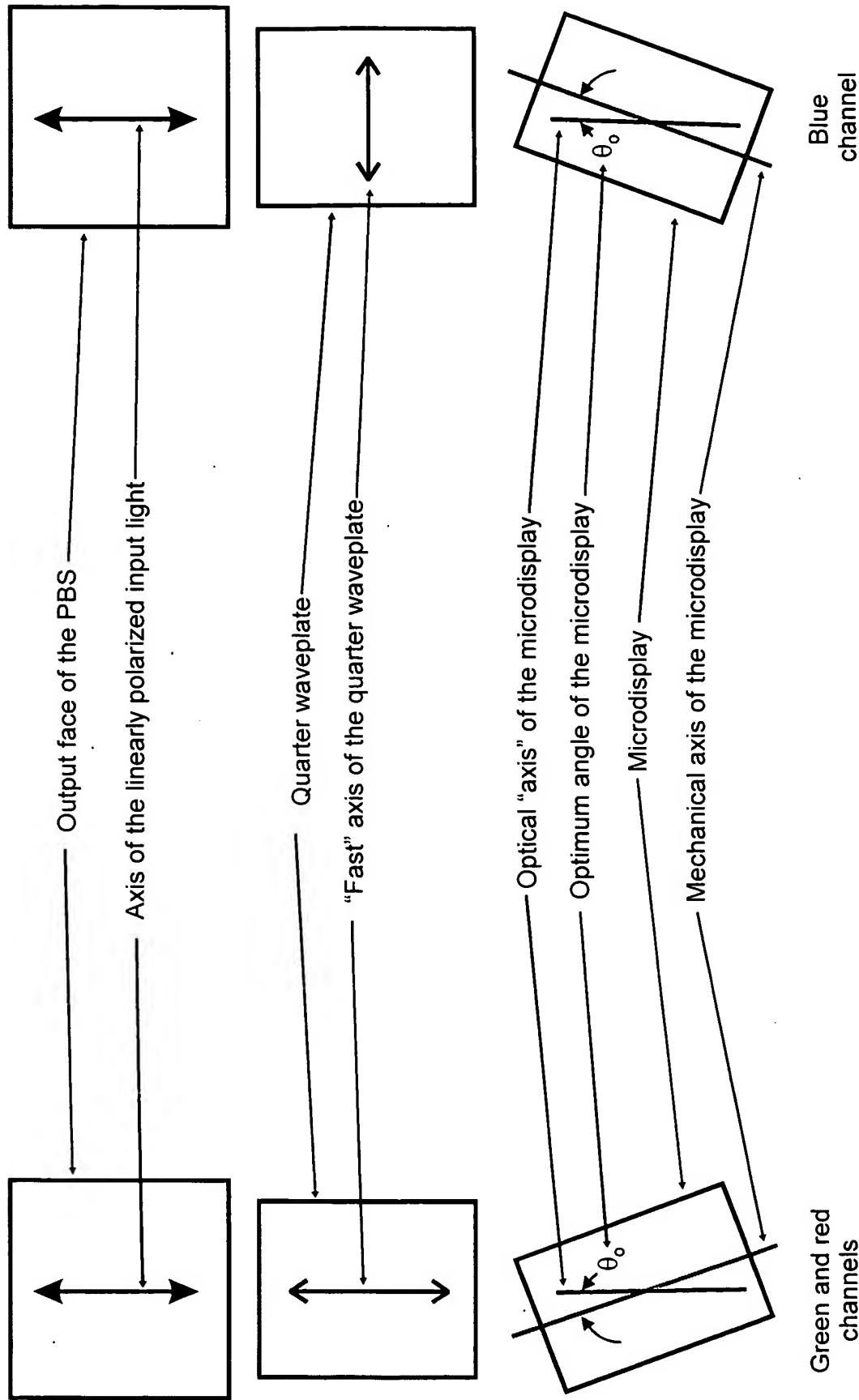
FIGURE #5: THE FIRST DISCLOSED COMPENSATION METHOD FOR LCOS KERNELS



The angle chosen for the orientation of a principle optical axis of the waveplate is parallel to the linearly polarized light output by the PBS and thus optimum for skew ray compensation.

The microdisplay has been rotated such that the linearly polarized input light is incident at the optimum angle θ_0 for residual retardation compensation.

FIGURE #6: MEANS TO ALLOW THE MICRODISPLAYS IN ALL THREE CHANNELS TO ROTATE IN THE SAME DIRECTION AS OBSERVED AT THE OUTPUT FACE OF THE KERNEL



**FIGURE #7: OPTIMIZING THE WAVEPLATE
FOR THE FIRST COMPENSATION METHOD**

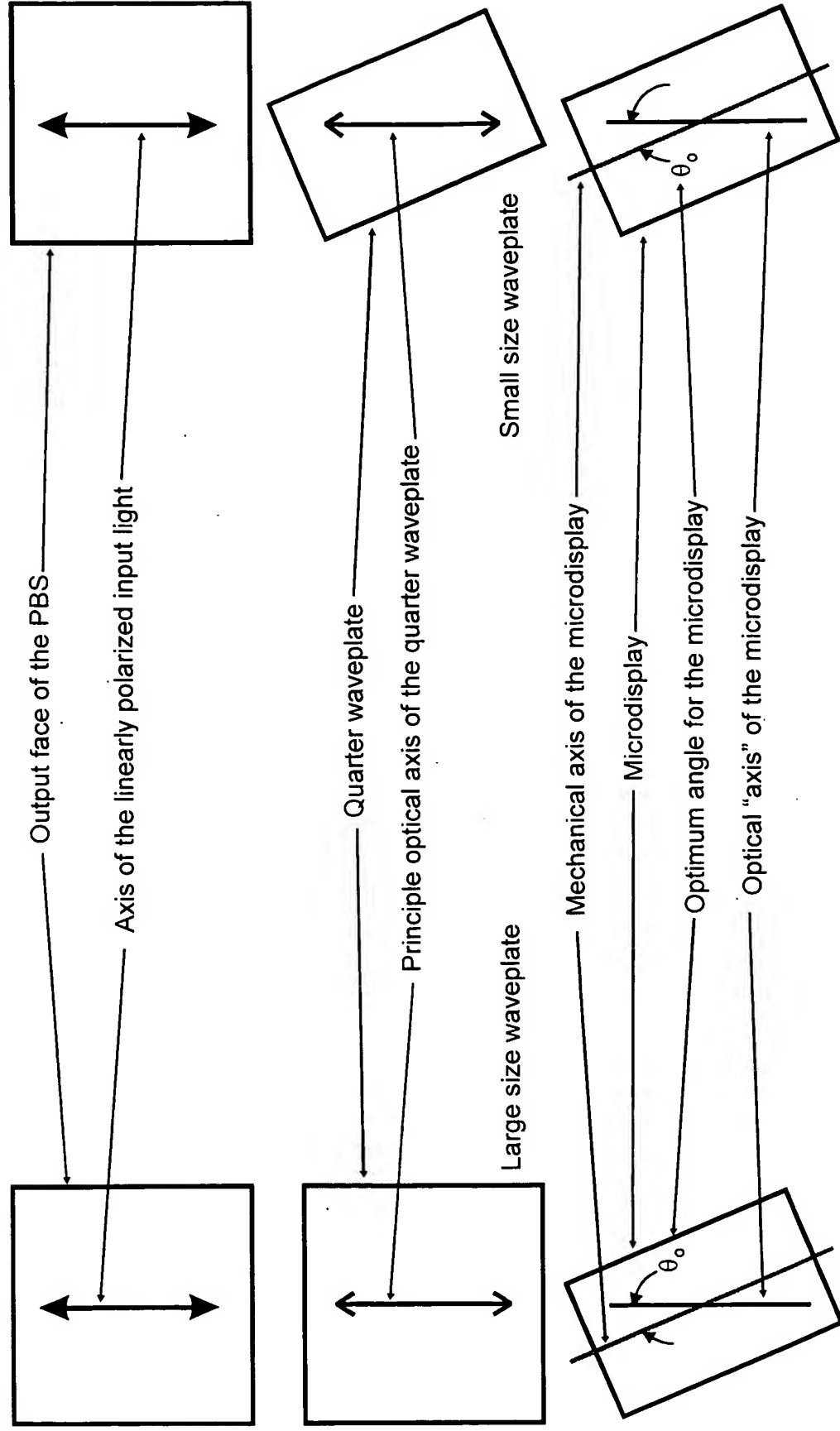
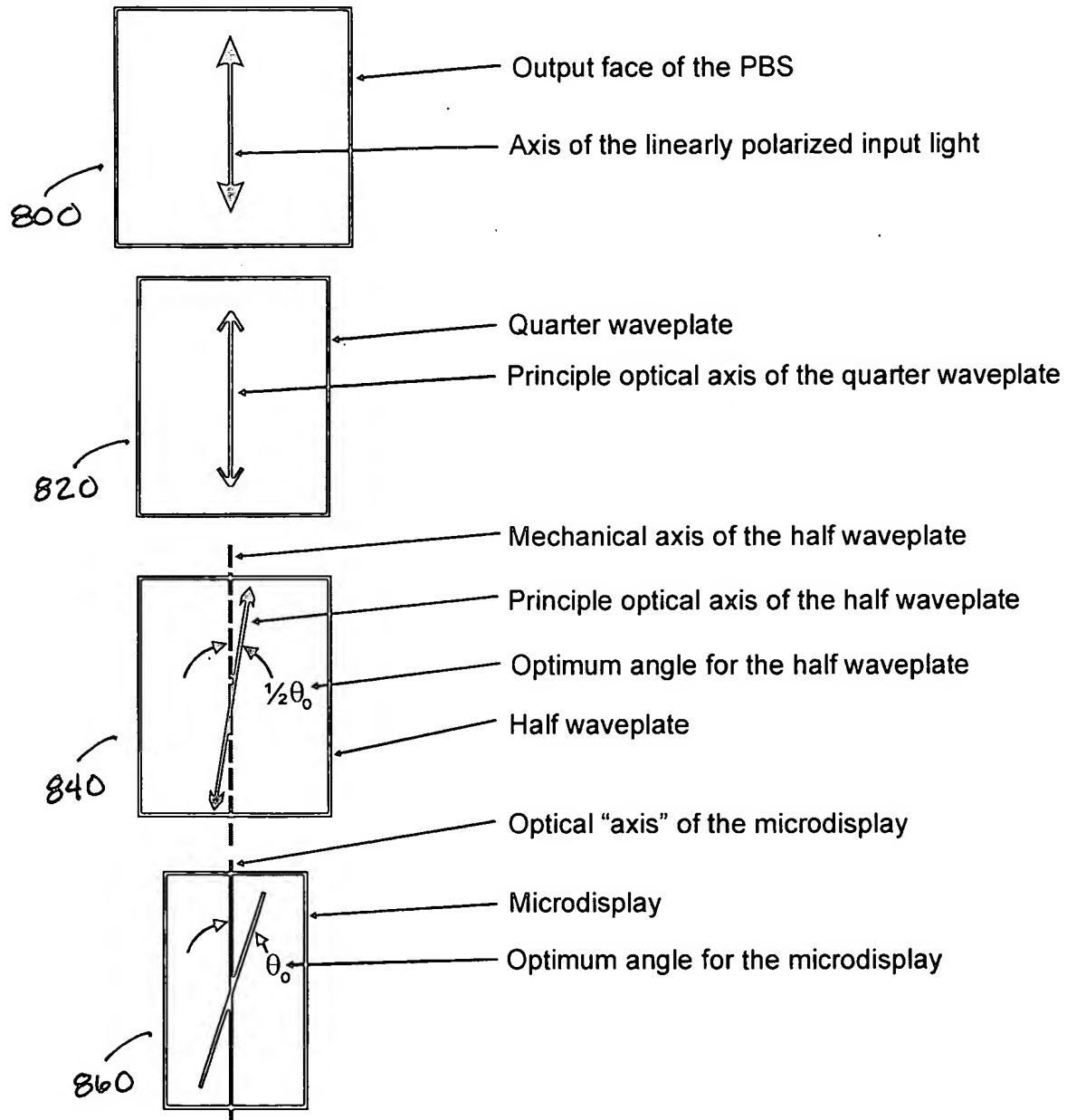


FIGURE #8: THE SECOND DISCLOSED COMPENSATION METHOD FOR LCOS KERNELS



The angle chosen for the orientation of a principle optical axis of the quarter waveplate is parallel to the linearly polarized light output by the PBS and optimum for skew ray compensation. A optical axis of the half waveplate is oriented at $\frac{1}{2}\theta_0$ so as to rotate the axi of linear polarization to θ_0 . At this angle the linearly polarized light input to the microdisplay is at the angle required for optimum residual retardation compensation.

FIG. 9

~~FIG. 9~~ DEFINITION OF IN-OUT ORIENTATION AND THE PRISM FACES

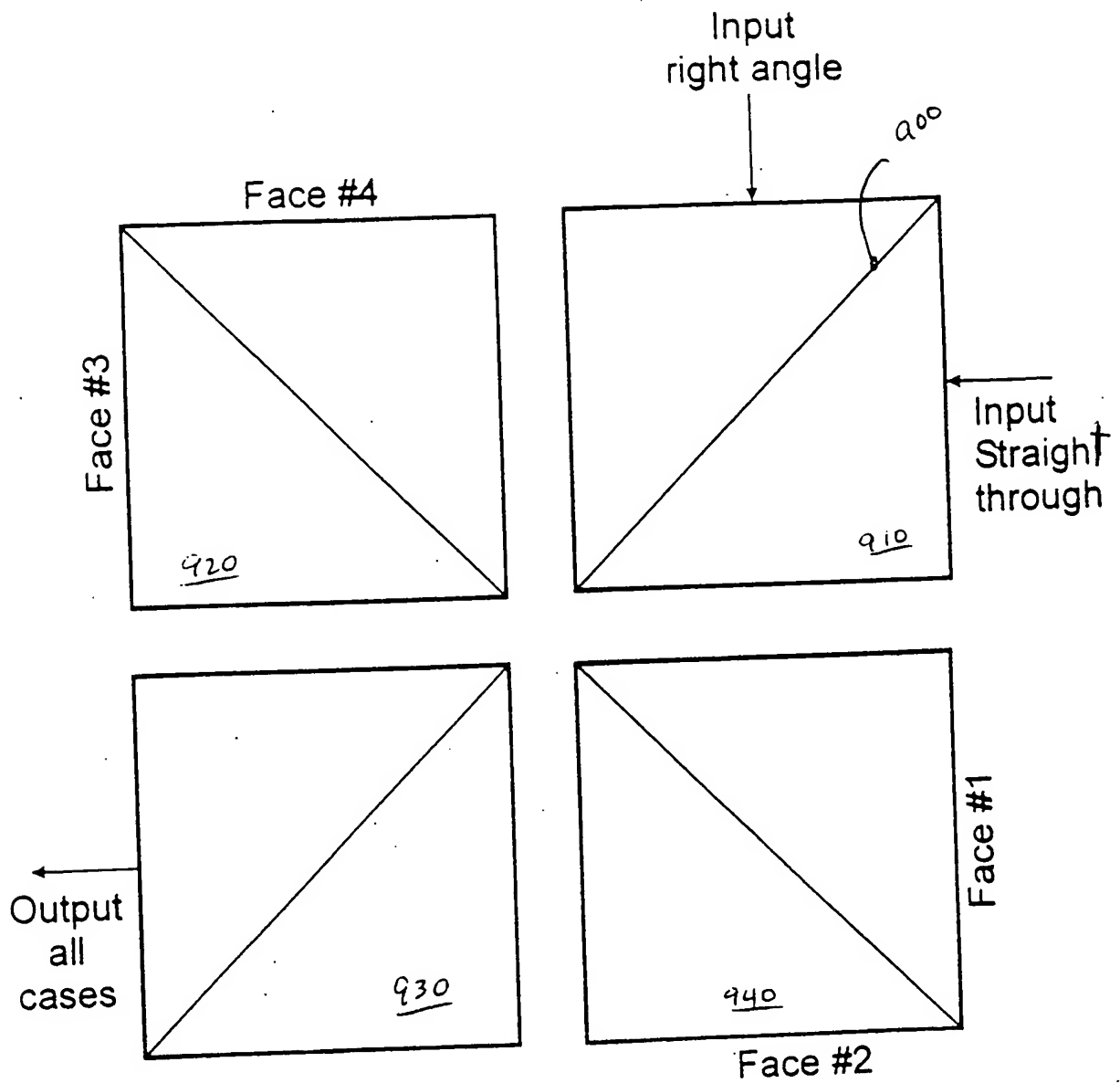


FIG. 10

~~FIGURE 10~~: A SUMMARY OF KERNEL CONFIGURATIONS

CONFIGURATION NUMBER	INPUT ORIENTATION	FACE 1	FACE 2	FACE 3	FACE 4
1	Right angle	Blue	Red	Green	-
2	Right angle	Blue	Red	-	Green
3	Right angle	Blue	Green	Red	-
4	Right angle	Blue	Green	-	Red
5	Right angle	Blue	-	Red	Green
6	Right angle	Blue	-	Green	Red
7	Right angle	Red	Blue	Green	-
8	Right angle	Red	Blue	-	Green
9	Right angle	Red	Green	Blue	-
10	Right angle	Red	Green	-	Blue
11	Right angle	Red	-	Green	Blue
12	Right angle	Red	-	Blue	Green
13	Right angle	Green	Red	Blue	-
14	Right angle	Green	Red	-	Blue
15	Right angle	Green	Blue	Red	-
16	Right angle	Green	Blue	-	Red
17	Right angle	Green	-	Red	Blue
18	Right angle	Green	-	Blue	Red
19	Right angle	-	Blue	Red	Green
20	Right angle	-	Blue	Green	Red
21	Right angle	-	Red	Blue	Green
22	Right angle	-	Red	Green	Blue
23	Right angle	-	Green	Blue	Red
24	Right angle	-	Green	Red	Blue
25	Straight through	Blue	Red	Green	-
26	Straight through	Blue	Red	-	Green
27	Straight through	Blue	Green	Red	-
28	Straight through	Blue	Green	-	Red
29	Straight through	Blue	-	Red	Green
30	Straight through	Blue	-	Green	Red
31	Straight through	Red	Blue	Green	-
32	Straight through	Red	Blue	-	Green
33	Straight through	Red	Green	Blue	-
34	Straight through	Red	Green	-	Blue
35	Straight through	Red	-	Green	Blue
36	Straight through	Red	-	Blue	Green
37	Straight through	Green	Red	Blue	-
38	Straight through	Green	Red	-	Blue
39	Straight through	Green	Blue	Red	-
40	Straight through	Green	Blue	-	Red
41	Straight through	Green	-	Red	Blue
42	Straight through	Green	-	Blue	Red
43	Straight through	-	Blue	Red	Green
44	Straight through	-	Blue	Green	Red
45	Straight through	-	Red	Blue	Green
46	Straight through	-	Red	Green	Blue
47	Straight through	-	Green	Blue	Red
48	Straight through	-	Green	Red	Blue